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MIC5524

High-Performance 500mA LDO in Thin DFN Package

General Description

The MIC5524 is a low-power, µCap, low dropout regulator designed for optimal performance in a very-small footprint. It is capable of sourcing 500mA of output current and only draws 38µA of operating current to do so. The MIC5524 includes an auto-discharge feature on the output that is activated when the enable pin is low and it has an internal pull down resistor on the enable pin that will disable the output when the enable pin is left floating, this is ideal for applications where the control signal is floating during processor boot up.

This high-performance LDO offers fast transient response and good PSRR in a 1mm × 1mm Thin (0.4mm ht.) DFN package.

Ideal for battery-operated applications, the MIC5524 offers 2% accuracy, extremely low dropout voltage (260mV @ 500mA), and can regulate output voltages down to 1.0V. Equipped with a TTL logic-compatible enable pin, the MIC5524 can be put into a zero-off-mode current state, drawing no current when disabled.

The MIC5524 is a µCap design, operating with very small ceramic output capacitors for stability, reducing required board space and component cost for space-critical applications. The MIC5524 has an operating junction temperature range of –40°C to 125°C.

Datasheets and support documentation are available on Micrel's web site at: www.micrel.com.

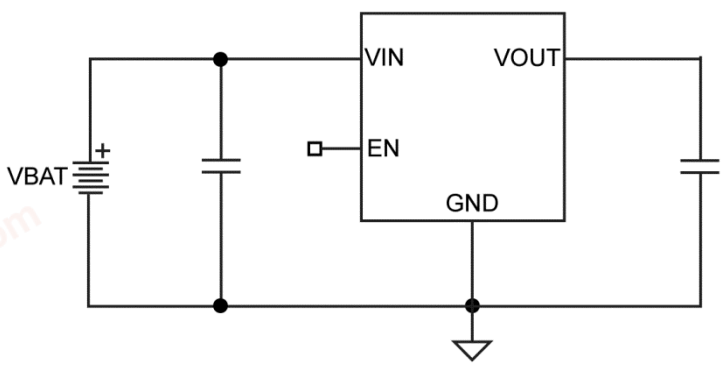
Features

- Input voltage range: 2.5V to 5.5V
- Fixed output voltages down to 1.0V
- 500mA guaranteed output current
- High output initial accuracy (±1%)
- High PSRR 80dB
- Low quiescent current 38µA
- Stable with 2.2µF ceramic output capacitors
- Low dropout voltage 260mV @ 500mA
- Auto discharge and internal enable pulldown
- Thermal-shutdown and current-limit protection
- 4-pin 1mm x 1mm Thin DFN package

Applications

- Portable communication equipment
- DSC, GPS, PMP, and PDAs
- Portable medical devices
- 5V POL applications

Typical Application



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Absolute Maximum Ratings[1]

Supply Voltage (V_{IN}) ..... –0.3V to 6V
Enable Voltage (V_{EN}) ..... –0.3V to V_{IN}
Power Dissipation (P_D) ..... Internally Limited[3]
Lead Temperature (soldering, 10s) ..... 260°C
Junction Temperature (T_J) ..... –40°C to +150°C
Storage Temperature (T_S) ..... –65°C to +150°C
ESD Rating[4] 3kV

Operating Ratings[2]

Supply Voltage (V_{IN}) ..... 2.5V to 5.5V
Enable Voltage (V_{EN}) ..... 0V to V_{IN}
Junction Temperature (T_J) ..... –40°C to +125°C
Junction Thermal Resistance
1mm × 1mm Thin DFN-4 (θ_{JA}) ..... 250°C/W

Ordering Information

Part Number	Marking Code	Output Voltage[5]	Temperature Range
MIC5524-1.2YMT	C9	1.2V	–40°C to +125°C
MIC5524-1.8YMT	C6	1.8V	–40°C to +125°C
MIC5524-2.8YMT	4C	2.8V	–40°C to +125°C
MIC5524-3.0YMT	3C	3.0V	–40°C to +125°C
MIC5524-3.3YMT	C3	3.3V	–40°C to +125°C

Notes:

1. Exceeding the absolute maximum rating can damage the device.
2. The device is not guaranteed to function outside its operating rating.
3. The maximum allowable power dissipation of any T_A (ambient temperature) is $P_{D(max)} = (T_{J(max)} – T_A) / \theta_{JA}$. Exceeding the maximum allowable power dissipation will result in excessive die temperature, and the regulator will go into thermal shutdown.
4. Devices are ESD sensitive. Handling precautions are recommended. Human body model, 1.5kΩ in series with 100pF.
5. Other voltages available. Contact Micrel for details.

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